REMARKS

Claims 1 and 4-31 are currently pending. Claims 1, 9, 14 and 15 have been amended. The changes to claims 9 and 15 are made for readability and are not intended to relate to patentability or to narrow the scope of the claims. Claims 2 and 3 have been canceled. New claims 22-31 have been added. Reconsideration of the above-identified application is respectfully requested.

The Office Action includes a rejection of claims 1-21 under 35 U.S.C. § 103(a) as allegedly being unpatentable over the Kienzle et al. publication (U.S. Patent Application Publication No. 2002/0084422) in view of the Kamijo et al. patent (U.S. Patent No. 6,566,663). Claims 1 and 14 have been amended, and claims 2-3 have been canceled. It is respectfully submitted that claims 1 and 4-21 are patentable over the applied references.

The Office alleges that the Kienzle publication discloses all of the features recited in claims 1, 14 and 18-21, except for the numerical condition recited in claims 1 and 14. With regard to claims 1-8 and 14, the Office alleges that the Kamijo et al. patent discloses nearly all the limitations recited therein, except that the value of "c" from the Kamijo et al. patent is different from the values recited in claims 1-8 and 14. The Office also alleges that the Kamijo et al. patent indicates that the parameter "c" is a result-effective variable and that it would have been obvious to optimize the composition and/or fabrication parameters of the ferrite material disclosed therein to obtain the "c" values recited in claims 1-8 and 14 to obtain a desired temperature response. The Office further suggests that it would have been obvious to modify the magnetic lens assembly disclosed in the Kienzle publication to use such hypothetical ferrite material of the Kamijo et al. system to provide a ferrite having increased

temperature stability. Applicants respectfully disagree with the Office's assessment and submit that claims 1 and 4-21 are patentable over the applied references, either singly or in combination.

First, it is respectfully submitted that the rejection does not make out a *prima facie* case of obviousness at least because the Kamijo et al. patent does not indicate that the claimed parameter "c" is a result-effective variable. As noted at MPEP 2144.05(II)(B) a particular parameter must be recognized in the prior art as a result effective variable before determination of optimum or workable ranges can be viewed as routine experimentation. *In re Antonie*, 195 USPQ 6 (CCPA 1977). Contrary to the Office's suggestion, it is not seen where the Kamijo et al. patent allegedly discloses an appreciation for the claimed parameter "c" as a result effective variable. The Kamijo et al. patent discloses adjusting the slope of the initial permeability curve at column 8, lines 51-55, for example, but does not disclose further dividing the slope by the maximum permeability (or by any permeability value) in an operating temperature range to obtain a parameter that is a result effective variable. Accordingly, the rejection is deficient for at least this reason and should be withdrawn.

In addition, it is respectfully submitted that the Kamijo et al. patent teaches away from the subject matter recited in independent claims 1 and 14. The Kamijo et al. patent discloses that temperature has an influence on permeability number and that a ferrite may be selected such that a change in the permeability number in a normal operating temperature range is sufficiently low such that the displacement of an image resulting from a temperature change is less than or equal to 1 nanometer per 0.01 C (column 4, line 42 – column 5, line 7). The Kamijo et al. patent also

discloses that the ferrite material may be so designed by choosing a particular composition or firing temperature for the ferrite (column 8, lines 24-28).

More particularly, the Kamijo et al. patent discloses an approach wherein the ferrite used in making ferrite stacks 9, 10 is formulated/fabricated so that the initial magnetization curves of the ferrite at different temperatures intersect each other at a particular desired magnetic field strength. This is illustrated in Figure 1 of the Kamijo et al. patent, the intersection point being point P, and described, for example, at column 7, lines 23-37 therein. There are two situations where intersecting initial magnetization curves can be obtained:

1: The saturation magnetic flux density decreases with increasing temperature, and the secondary peak of the initial permeability is at a temperature higher than the operating temperature (column 8, lines 12-47, and Figures 1, 2 and 3); and

2: The saturation magnetic flux density increases with increasing temperature, and the secondary peak of the initial permeability is at a temperature lower than the normal operating temperature (column 9, lines 43-60, and Figure 5).

In either case, to achieve an intersection between the magnetization curves as shown in Figures 1 and 5, the slope of the permeability must be substantially non-zero at and near the operating temperature. Otherwise, the dotted magnetization curves shown in Figures 1 and 5 would simply undergo a vertical shift from the solid magnetization curves due to the change in saturation magnetization with a change in temperature, the amount of the shift increasing with H, i.e., there would be no intersection between the curves. This follows directly from the relation $B=\mu H$. In particular, when there is a temperature change from a normal operating temperature

T to a temperature T' that causes a change in the saturation magnetization, in order to obtain an intersection between the initial magnetization curves at T and T' as shown in Figures 1 and 5 of the Kamijo et al. patent, the permeability μ must change sufficiently with temperature at and near T to cause B to change in a direction opposite to the change in saturation magnetization. That is, the slope of the permeability must be non-zero and large enough (i.e., greater than some threshold value) at the normal operating temperature to generate the desired intersection between the initial magnetization curves as shown in Figures 1 and 5. Thus, intersecting B-H curves as shown in Figures 1 and 5 of the Kamijo et al. patent are only possible if the $\mu(T)$ curve has a positive or negative slope at and near the normal operating temperature, depending upon whether the saturation magnetization increases or decreases with temperature.

With this understanding in mind, it is evident that the Kamijo et al. patent teaches away from the subject matter recited in claims 1 and 4-21. These claims include limitations on the variable "c" (which is proportional to the slope of the permeability number in a temperature range that includes the operating temperature) wherein the recited values of "c" are substantially smaller than can be inferred from the example cited by the Office at column 13 of the Kamijo et al. patent. In this regard, claims 1 and 14 have been amended to incorporate the subject matter of claim 4 to recite that "c" is less than $3 \cdot 10^{-4}$ K^{-1} to further highlight this distinction. To the extent that one can determine a value of "c" from the example disclosed at column 13 of the Kamijo et al. patent, it would appear to be about $1.6 \cdot 10^{-3}$ K^{-1} (i.e., 11 divided by 7000), a value more than five times larger than that recited in independent claims 1 and 14. Dependent claims 4-8 are further distinguishable in

this regard. It is respectfully submitted that routine optimization of the parameters disclosed in the Kamijo et al. patent by one of ordinary skill in the art would not have lead to the subject matter recited in claims 1 and 4-21 because such optimization would have been carried out consistent with the overall disclosure of the Kamijo et al. patent, which is to operate in a regime that provides for intersecting B-H curves. Thus, operating according to the Kamijo et al. patent necessarily requires operating in a temperature range in which the permeability has a sufficiently large slope as discussed above, and which excludes "c" values as recited in claims 1 and 14 as well as in claims 4-8.

It is noted that the Office refers to a numerical value $4 \cdot 10^{-2}$ at the top of page 6 of the Office Action. The origin of this number is not understood, and the Office is respectfully requested to provide further explanation of its origin and applicability.

Also, unlike the Kamijo et al. subject matter, the claimed subject matter includes a case (claims 9, 15) wherein a temperature dependency of the permeability number has an extremum in the operating temperature range and a case (claims 10, 16) wherein the operating temperature is substantially a temperature at which the temperature dependency of the permeability number is an extremum (i.e., the slope of the permeability curve at the operating temperature is substantially zero). The Office Action at page 3 appears to suggest that one of ordinary skill would have been motivated to choose an operating temperature at the apex of the primary peak of the $\mu(T)$ curve shown in Figure 2 of the Kamijo et al. patent, the apex occurring at a temperature of approximately 200 C. It is respectfully submitted that the Kamijo patent teaches away from choosing such an operating temperature. In particular, in addition to the reasons set forth above, the Kamijo et

al. patent discloses that the operating temperature is preferably lower than the temperature at the valley between the primary and secondary peaks of the curve shown in Figure 2 (column 9, lines 54-60). The Kamijo et al. patent further discloses using an operating temperature of 25 C (column 13, 35-39) and indicates that the temperature range is about ± 0.01 C from the normal operating temperature even in extreme cases (column 13, lines12-15). Accordingly, one of ordinary skill in the art would not have been motivated to use an operating temperature range at the apex of the primary peak of Figure 2 of the Kamijo et al. patent as suggested by the Office because the Kamijo et al. patent expressly teaches away from doing so, and claims 9, 10, 15 and 16 are further patentable for these additional reasons.

With regard to claims 12-13, the Office suggests that permeability numbers greater than 8000 and 10000 would have been obvious as a result of discovering optimum or working ranges, citing *In re Aller*, 105 U.S.P.Q. 233. In this regard, MPEP § 2144 indicates that legal precedent can be relied upon as a rationale in support of obviousness only if the facts of the case under examination and the facts of the legal decision are sufficiently similar. The rejection does not contain any analysis or comparison of the facts of the present application with those in *Aller*. Actually, the facts of the present case are easily distinguishable from those of Aller. In particular, in *Aller* the patent was directed to a process for the production of phenol (carboxylic acid). The claimed process was identical to the prior art except that the claims recited lower temperatures and higher sulphuric acid concentrations than shown in the applied reference. 105 U.S.P.Q. 233, 234. In contrast, the present presently claimed subject matter reflects an approach that is substantially different than that of the Kamijo et al. patent for reasons discussed above.

Accordingly, the Office's reliance upon *Aller* for alleged motivation to optimize the Kamijo approach to obtain the claimed "c" values is misplaced. Claims 12 and 13 are further allowable for at least this additional reason.

For at least the above-noted reasons, withdrawal of the rejection and allowance of claims 1 and 4-21 are respectfully requested.

New claims 22-31 have been added to round out the scope of protection being sought. It is respectfully submitted that claims 22-31 are patentable over the applied references at least for reasons similar to those set forth above. Allowance of claims 22-31 is respectfully requested.

In light of the above, withdrawal of the rejection and allowance of this application are respectfully requested. Should there be any questions in connection with this application, the Office is invited to contact the undersigned at the number below.

Respectfully submitted,

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